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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,105	07/06/2001	Claire Barroux	612.40276X00	2742
20457	7590	01/26/2005	EXAMINER	PHAN, THAI Q
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889			ART UNIT	PAPER NUMBER
			2128	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/899,105	BARROUX, CLAIRE
	<b>Examiner</b>	<b>Art Unit</b>
	Thai Q. Phan	2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 06 July 2001.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-5 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 06 July 2001 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/06/2001</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

This Office Action is in response to patent application S/N: 09/899,105, filed on 07/06/2001. Claims 1-5 are pending.

### ***Drawings***

The drawings filed on 07/06/2001 are acceptable for examination.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 07/06/2001 was considered.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts, US patent no. 6,108,608 in views of applicant's admitted prior art.

As per claim 1, Watts discloses a method for estimating properties of a multi-component fluid using pseudocomponents with feature limitation similar to the claimed invention. According to Watts, the method include steps

Discretizing the reservoir by means of a grid, each grid cell containing one or more phase, including at least non-aqueous phase (10) (col. 6, lines 59-65),

Determining phase parameter necessary for oil or black oil type modeling during stages of fluid behavior path followed by the fluids in the reservoir (col. 6, lines 13-51),

Defining the fluids by a detailed representation with components and pseudocomponents (col. 5, lines 26-45),

Determining at least one state function with parameters allowing to simulate, at least in the input data preparation stage, the behavior of the fluids flows between each grid cell, the thermodynamic behavior of the fluid flow during the stage of flow path, so as to generate, in each the thermodynamic zone desired to perform a delumping operation, additional input data (col. 8, line 9 to col. 13, line 45)

Converting the flow or thermodynamic behavior of each non-aqueous phase into input data suited for black oil thermodynamic representation for a delumping operation (cols. 8-13),

Carrying out black oil type modeling allowing to determine, in each cell and at successive time intervals, thermodynamic characteristics of each non-aqueous phase and data representative of phase displacements in the reservoir, and

Carrying out a delumping operation in order to obtain the detailed composition of the fluids in each cell. Watts does not expressly disclose variations for differential operation on the simulation as in present context. Such feature is however well-known in the art. In fact, Peng-Robinson's two-parameter equation of state is for modeling and simulating variation of differences of reservoir oil behavior (applicant's admitted prior art, page 10, last paragraph to page 11, paragraph 1).

Practitioner in the art at the time of the invention was made would have found it obvious to modify the Watt disclosure by incorporating Peng-Robinson's state equation above to model and simulate oil reservoir as continuous function of thermodynamic

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parameters such as pressure, temperature and oil composition because the state equation provides sufficient conditions for behavior changes.

As per claims 2-5, applicant admitted the prior art teaching of variations in the composition of the fluids and the properties of various phases, temperature, pressure, liquid saturation, vapor phase, etc. as claimed.

***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US patent no. 6,101,447, issued to Poe, on Aug. 8, 2000.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Q. Phan whose telephone number is 571-272-3783.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached on 571-272-3780. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent

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3. Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jan. 20, 2005

  
Thai Phan  
Patent Examiner  
Art Unit 2128